

# *Air Bag Cover* *Technical Field*

The present invention relates to a cover for an inflatable bag or cushion type retaining device, as well as to an item of inside trim for a vehicle including such a cover.

Although more especially intended to equip lateral retaining devices, it can also be used with retaining devices located in other parts of a vehicle, such as, in particular, the dashboard, the seats or other parts.

*Background Art*  
 There are presently known inflatable bag or cushion type retaining devices provided in the area of the dashboard, the door panels and/or the seat backs.

They use rigid covers, obtained by injection moulding, integrated in the panels of materials that surround them. The said covers are provided in the mass of weakened zones the failure of which enables the cover to open when the retaining devices are triggered.

There are also known inflatable bag or cushion type retaining devices provided in the area of the windscreen posts, the front and/or rear bottom runners, the upper central support and/or the rear quarter. They are designed to deploy to form a bolster-shaped bag or cushion suspended in the area of the side windows of the vehicle.

Very often, the covers of these devices are provided with a decorative covering made of synthetic materials (thermoplastic sheets, knitted, woven or non-woven fabric) to form a lining piece.

In this case, problems are posed in connection with the tear strength of the decorative material in the weakened zone of the covers. The lining piece then has to be removed completely to enable the retaining device to

function.

Complex, costly systems for swinging and retaining the lining piece upon the triggering of the retaining system have thus been developed. Sometimes, even, the proximity of the vehicle occupant precludes the use of such devices and, as a result, one is faced with an impossible situation.

Soft trim, or covering, elements of textile material having a seam provided in the mass in the area of the weakened zone to permit their failure

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have also been developed. When the inflatable bag or cushion type retaining device is triggered, the said seam is sectioned through the effect of the expansion of the device and thus permits deployment.

It is found, however, that this solution restricts the choice of materials  
5 that can be used. These must, indeed, be tearable. In addition, after triggering, the covering element is destroyed, thus precluding any re-use.

The object of the present invention is to provide a cover for an inflatable bag or cushion type retaining device that overcomes the aforementioned drawbacks.

10 Another object of the present invention is to provide a lit for an inflatable bag or cushion type retaining device that offers a wider choice of materials that can be used to facilitate its decoration.

Another object of the present invention is to provide a cover for an inflatable bag or cushion type retaining device that is possibly re-usable and  
15 that enables the destruction of the cover after the device has been triggered to be avoided.

Another object of the present invention is to provide a cover for an inflatable bag or cushion type retaining device that is lighter, the weight being divided by as much as 4, thus making it possible to reduce the inertia and/or  
20 stresses set up and to re-dimension the cover holding devices so that they are lighter and less expensive.

Another object of the present invention is to provide a cover for an inflatable bag or cushion type retaining device that contributes to the acoustic insulation of the vehicle equipped therewith.

25 Another object of the present invention is to provide a cover for an inflatable bag or cushion type retaining device providing, directly or indirectly, a trim or covering for the bodywork of the vehicle equipped therewith.

Further objects and advantages of the invention will emerge in the course of the description that follows, which is given only by way of  
30 illustration and is not intended to limit same.

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## *Summary of the Invention*

The present invention relates, in the first place, to a cover for an inflatable bag or cushion type retaining device, in particular a lateral one, including at least a body, means for retaining the said body and means for fixing the said body, directly or indirectly, to the bodywork of a vehicle, *in which*

5 characterised by the fact that:

- the body of the said cover is constituted by at least two layers, namely :

- a layer permitting the shapping and the self-maintaining of the said cover ;

10 - a layer allowing the said fixing means to be attached to the said body ;

- the said fixing means are designed to be added on and capable of giving way under the action of the retaining device when it is triggered, so as to enable the said cover to open without the said body tearing.

15 The invention also relates to an item of inside trim for a vehicle, including :

- a bodywork element having a housing receiving an inflatable bag or cushion type retaining device ;

20 *> Brief Description of the Drawings*  
The invention will be more readily understood upon studying the following description accompanied by the annexed drawings, which form an integral part thereof, and wherein :

25 - figure 1 is a lateral cross-sectional view illustrating an exemplary form of embodiment of the cover according to the invention installed in the area of a bottom runner of a vehicle ;

- figure 2 is a detailed view of the cover shown in figure 1 above ;

- figure 3 is a front view corresponding to figure 1 above ;

*> Detailed Description of the Invention*  
figure 4 is a detailed view of the zone marked IV in figure 1 above.  
The present invention relates to a cover for an inflatable bag or  
30 cushion type retaining device, in particular a lateral one.

However, although more especially intended for such applications, it can also be used for inflatable bag or cushion type retaining devices located in other parts of the vehicle, such as, for example, the dashboard or a seat.

As shown in figure 1, cover 1 according to the invention includes at least a body 2, means 3 for retaining the ~~said~~ body 2 and means 4 for fixing the ~~said~~ body 2 to the bodywork 5 of a vehicle.

It thus enables an inflatable bag or cushion type retaining device, diagrammatically illustrated in dotted lines, to be concealed, at least partially.

According to a first form of embodiment, body 2 is fixed directly to the bodywork 5. According to another form of embodiment, the ~~said~~ body 2 is fixed indirectly to the ~~said~~ bodywork 5, in particular, as described in greater detail below, via a <sup>projection</sup> ~~distance piece~~ 7.

So as to enable the ~~said~~ cover 1 to open, and thus permit the deployment of retaining device 6 in the passenger compartment of the vehicle, the ~~said~~ fixing means 4 are designed to be capable of giving way under the action of the ~~said~~ retaining device 6 when it is triggered.

As the ~~said~~ cover 1 is removably fixed to bodywork 5, it can thus be moved away, in particular in the direction of arrow 20, without either tearing of the ~~said~~ body 2 or damage thereto. If so wished, it can then be re-used.

This being the case, the ~~said~~ retaining means 3 make it possible to prevent the ~~said~~ cover 1 from becoming a projectile when the ~~said~~ retaining device 6 is triggered by keeping it connected, for example, to the ~~said~~ bodywork 5.

Furthermore, as shown in figure 2, the ~~said~~ fixing means 4 are designed to be added on to body 2 and the latter, which is designed to be multi-layer, is constituted by at least a layer 8 permitting the <sup>slipping</sup> ~~snapping~~ and self-maintaining of the ~~said~~ cover 1, and by a layer 9 allowing the ~~said~~ fixing means 4 to be attached to the ~~said~~ body 2.

Cover 1 can thus define, for example, a plane or shaped piece, having hollows and/or protuberances enabling its profile to fit that of the bodywork 5

and/or surrounding items of trim. The latter form, for example, a frame around the ~~said~~ cover 1.

According to one exemplary form of embodiment of the invention, the ~~said~~ body 2 further includes an embellishing sheet 10, intended, in particular, to be orientated towards the passenger compartment. It is constituted, for example, by a woven, non-woven, knitted or calendered synthetic material or by leather.

The ~~said~~ formation and maintaining layer 8 is provided, in particular, between the ~~said~~ attachment layer 9 and the ~~said~~ embellishing layer 10.

It is constituted, for example, by a thermoformable synthetic cellular material, in particular a thermoplastic or semi-thermoplastic material such as polyolefins. It may possibly take the form of a foam.

By way of a non-limitative example, the material used to constitute the ~~said~~ formation and maintaining layer 8 has, for example, a density of 10 to 100 kg/m<sup>3</sup>, in particular approximately 50 kg/m<sup>3</sup>.

It thus <sup>reduces</sup> enables the risks of fragmentation of cover 1 under the thrust of retaining device 6 when it expands to be reduced.

It is also to be noted that the material chosen is capable, for example, of preserving its mechanical properties over a large range of temperatures, for example from -35 to +80°C.

The ~~said~~ fixing means 4 are constituted, in particular, by two elements, 11a, 11b, capable of being rendered integral with, and of being detached from, one another, one of them, 11a, being secured to the ~~said~~ body 2 and the other, 11b, being designed to be capable of being secured, directly or indirectly, to the ~~said~~ bodywork 5.

By way of a non-limitative example, these can be fixing elements of the <sup>VELCRO(TM)</sup> Velcro type.

Fixing means 4, for example formed by strips, are provided, in particular, in the vicinity of the edges of the ~~said~~ body 2, on a part of its periphery, as illustrated by the dashed line shading in figure 3.

The ~~said~~ cover 1 is, for example, substantially quadrangular and fixing means 4 are then disposed on three of its sides.

As to retaining means 3, they can also be provided, partially, on the periphery of the ~~said~~ body 2, in particular in a manner complementary to that  
5 of the ~~said~~ fixing means 4.

According to the example mentioned earlier, retaining means 3 are located on one of the sides, in particular on the remaining one.

Referring again to figures 1 and 2, it will be noted that the ~~said~~ retaining means 3 are constituted, for example, in the mass of the ~~said~~ body 2 by a <sup>flap of flexible material</sup> thin portion 12, provided along one of its edges, 13, capable of being permanently fixed, directly or indirectly, to the ~~said~~ bodywork 5 to constitute a hinge.  
10

The ~~said~~ <sup>flap of flexible material</sup> thin portion 12 has, for example, a thickness in the order of one tenth of the mean thickness of the rest of the ~~said~~ body 2. It is attached, in particular, by riveting to the ~~said~~ bodywork 5 and/or to an element built onto to the latter, such as the ~~said~~ <sup>projection</sup> distance piece 7.  
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According to another form of embodiment, not illustrated, the ~~said~~ retaining means 3 are constituted, for example, by <sup>VELCRO(TM)</sup> Velcro type elements, the surface bonding strength of which is greater than that of those used as fixing  
20 means 4.

The present invention also relates to an item of inside trim for a vehicle including a bodywork element 5, having a housing 14 receiving an inflatable bag or cushion type retaining device, and a cover 1, as described above, covering the ~~said~~ housing 14.

25 The ~~said~~ item of trim is provided, for example, in the are of the windscreen posts, the front and/or rear bottom runners, the upper central support and/or the rear quarter.

As mentioned earlier, it possibly further includes a <sup>projection</sup> ~~distance piece~~ 7 resting in the ~~said~~ housing 14 at one, 7a, of its ends and co-operating, at  
30 least partially, with the ~~said~~ fixing means 4, at the other end, 7b.

*projection*  
The ~~said distance~~ piece 7 is provided, in particular, over the entire contour of housing 14 and thus constitutes, for example, a cavity inside which the ~~said retaining~~ device 6 is provided.

End 7b of the ~~said distance~~ piece 7 co-operating with the ~~said fixing~~ means 4 has, for example, a shoulder 15 on which the ~~said retaining~~ means 3 and/or the ~~said element~~ 11b of the ~~said fixing~~ means 4, such as, for example, one of the ~~Velcro~~ strips, is/are secured.

*the*  
The ~~said fixing~~ means 4 are provided, for example, slightly back from the edges of the ~~said body~~ 2, thus leaving the latter free and unfixed, at the very least over a portion of the contour of the ~~said cover~~ 1.

In this connection, as illustrated in detail in figure 4, the edge of the ~~said cover~~ 1 possibly has a formed zone 16 for co-operating with a facing formed zone 17 on the ~~said bodywork~~ element 5 or one of its trim or covering elements located in the vicinity of the ~~said housing~~ 14.

It thus enables a clear interface to be defined in the area of the contour of the ~~said cover~~ 1. The ~~said formed~~ zones are constituted, in particular, by facing grooves and/or flat portions. They can also *include* ~~consist~~ as shown, of a rounded portion 18, provided on the ~~said body~~ 2 and co-operating with a groove 19 provided in the ~~said bodywork~~ element 5.

It should further be noted that the use of a layer of foam based material enables such a rounded portion 18 to be defined.

The ~~said inflatable~~ bag or cushion type retaining device and/or thin hinge-forming portion 12 are provided, for example, at a lower portion of the ~~said housing~~ 14.

By way of example, the ~~said body~~ 2 is obtained using a process according to which embellishing sheet 10 is adhered to the formation and maintaining layer 8, in particular by flame treatment or gluing, the ~~said layer~~ 9 enabling fixing means 4 to be attached also being placed on the ~~said layer~~ 8 to form a complex.

The ~~said fixing~~ means 4 are added on, in particular, by gluing or sewing.

Other forms of embodiment, within the grasp of a man of the art, could of course, have been contemplated without thereby departing from the scope of the invention.

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